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Management Issues for Telecommuting: A Case Study in the Software Engineering Industry

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Introduction

In this paper, we outline the issues faced by firms in today's telecommunications environment and juxtaposition these issues with an actual case study. While we do not seek to analyze all the issues using this single anecdotal experience, this in-depth analysis of one firm's experience may provide insight by supplying a vibrant illustration of the issues. Thus, the purpose of this paper is to present the issues that affect telecommuting and provide a specific example of the practice within one organization. We discuss the company and telecommuter backgrounds, analyze the issues relevant to this telecommuting case, and present our conclusions.

Company Background

Trade Reporting and Data Exchange, Inc. (T.R.A.D.E.) is a software engineering company located in San Mateo, CA. The firm was created in 1992 to provide international corporations access to a wide variety of international trade information stored on the T.R.A.D.E.'s massive databases. T.R.A.D.E. gathers data from a variety of sources including U.S. Customs documents, Chinese Customs Administration, Dun and Bradstreet, and numerous other government trade documents. They provide general information and specific trading activities on hundreds of thousands of international buyers, distributors, and suppliers.

Although relatively young, the firm has grown significantly and now employs a professional staff of 50. T.R.A.D.E., Inc. is truly an international organization with offices located in Hong Kong, Taiwan, the United Kingdom, and the corporate headquarters in San Mateo. Additionally, T.R.A.D.E. utilizes a number of licensed distributors in a number of other countries. T.R.A.D.E., Inc. was recognized as one of the ten, fastest growing, private companies, in Silicon Valley in 1996. While the firm is hesitant to reveal exact figures, revenues were in the multi-million dollar range in 1996 and represents T.R.A.D.E.'s significant share in the business intelligence market.

Telecommuter

The specific employee we will chronicle is Dave Tucker. Tucker has worked for T.R.A.D.E. for nearly five years as a software engineer, after working for a major hardware manufacturer in Silicon Valley for nearly seven years. His responsibilities at T.R.A.D.E. include developing advanced database queries, creating programs to interface source databases into T.R.A.D.E.'s massive database system and creating software applications for the CD-ROMs which subscribers receive.

Tucker relocated to Silicon Valley nearly eleven years ago, after he graduated with a computer science degree from a large mid-western university. Tucker and his wife both grew up in central Iowa. Now with two young children (ages 3 and 5), Tucker and his wife desired to return to central Iowa to be closer to family and friends and to provide their young children with childhood experiences similar to their own. In the spring of 1996, Tucker proposed a telecommuting arrangement to T.R.A.D.E.

T.R.A.D.E. agreed to allow Tucker to telecommute for the summer and both agreed to evaluate the arrangement at the end of the summer trial. After the summer trial Tucker and T.R.A.D.E. agreed that the telecommuting alternative had substantial merit and decided to enter the arrangement on a permanent basis. What follows is an enumeration of the issues related to telecommuting and a chronicle of how Tucker and T.R.A.D.E. addressed each issue.

Issues

Telecommuting presents organizations and their employees with a number of opportunities and a number of potential problems. Generally speaking, the benefits of telecommuting includes more hours worked per day, more work accomplished per hour, and less employee stress due to commuting and/or work/personal conflicts (such as a sick child) (Curran and Williams, 1997; Race, 1993; Schellenbarger, 1993). The organization must cope with employees' work schedules being more flexible, in that many telecommuters may or may not keep traditional work hours. Additionally, immediate access to employees' skills and services is somewhat diminished.

The major managerial issues impacting successful telecommuting require special attention be given to: selecting the right job category and the right individual for the arrangement, organizational incentives, social impacts of dispersed workers, management of overall costs, and productivity measurement of geographically dispersed work teams. Each of these issues will be examined and compared to the specific T.R.A.D.E. example. The technology that enables telecommuting is also an important issue, but is outside the scope of this paper.

Selection

Generally, individuals who have significant experience in a job, individuals who are above average performers, and persons with a broad range of job assignments will adjust better to a telecommuting arrangement than their less experienced, lower performing counterparts. Additionally, workers who have demonstrated superior technical skills (especially with remote working tools, such as a computer, modems, fax, and videoconferencing) will be more successful (Fish, et. al., 1992; Kraut, 1988; Mokhtarian and Salomon, 1994). Finally, some consideration for the individual's suitability for telecommuting may depend upon his/her personality profile and acceptance of a more ambiguous work setting.

In our example, case the firm did not initiate the telecommuting arrangement but Tucker's skills and experience are insightful. Tucker had significant experience in both the software development industry and with T.R.A.D.E. specifically. He had spent 11 years as a software engineer, four of those years with T.R.A.D.E. Thus, he had a firm understanding of his job tasks and the specific policies and goals of T.R.A.D.E. Additionally, Tucker was an extremely high achiever. When Tucker first proposed the telecommuting arrangement, T.R.A.D.E. management stated that they would have never considered such an arrangement had Tucker not been an exemplary employee whose services they wished to maintain, even if it meant altering the firm's standard operating practices. Finally, with respect to technical skills, Tucker pointed out that he felt the relationship functioned well due to his experience with the technology and his ability to provide his own technical support.

Organization

For the organization the benefits of telecommuting are numerous. Telecommuting offers the organization the opportunity to expand with limited cost increases, or in some cases to reduce overhead by eliminating office facilities (furniture, electricity, and environmental conditioning) and space requirements (Mokhtarian, 1988; Mokhtarian 1991a; Nijkamp and Salomon, 1989; U.S. Department of Transportation, 1993).

Telecommuting may provide access to skilled employees who do not desire to reside in a particular geographic area or who are limited due to other personal commitments (such as elderly or childcare responsibilities). Telecommuting also allows organizations to utilize workers in disadvantaged rural or urban areas, as well as incorporate the skills of workers who have left the workforce temporarily due to illness or to spend time with small children (Curran and Williams, 1997). This illustrates how telecommuting can be viewed as a form of virtual organization.

Although the advantages of telecommuting are numerous, there are some drawbacks to this alternative. Generally, managers are not trained to deal with remote workers, especially in terms of how to manage their activities and how to motivate them. Many managers are uncomfortable with the perceived loss of control created by telecommuting. However, most of the problems are more perceived than manifest. Good management skills in terms of delegation and performance measurement can alleviate most of the disadvantages (Katz and Kahn, 1979; Katz and Tushman, 1978).

Many of these issues were considered by T.R.A.D.E. in dealing with Tucker's request to telecommute. The firm was aware that the task of replacing Tucker may be daunting. Not only would they need to identify an individual with similar skills, but in all probability, they would face a significant task in attracting the candidate away from their present employer. Additionally, a large amount of time and resources would be spent bringing the new employee up to speed in terms of corporate culture and client expectations. Thus, given Tucker's desire to relocate, yet remain as an employee, the situation presented an opportunity for T.R.A.D.E. to retain the skills they require and provide a valued employee the flexibility he sought. Although T.R.A.D.E. would recapture Tucker's physical space, they didn't realize any significant cost savings related to physical facilities since this telecommuting arrangement was not an organization-wide arrangement. Managerial problems were not considered as crucial, primarily due to Tucker's solid history with the firm and the firm's confidence in his personal integrity and ability.

Social Aspects

The personal social benefits are the main attractiveness to most employees. Telecommuters are often unconstrained by traditional office schedules and work environments. They typically have the freedom to set more flexible work schedules to coincide with personal activities such as child, elderly, or disabled care responsibilities. The inherent lack of commuting lowers the stress, time, and financial cost of this activity. Remote workers recapture valuable time spent in daily commutes, along with reducing or eliminating the need for transportation (bus, auto, fuel, etc.) to commute (Mokhtarian, 1988; Mokhtarian, 1990; Mokhtarian 1991a; Nijkamp and Salomon, 1989; U.S. Department of Transportation, 1993).

The benefits are not without, real and potentially substantial, disadvantages (Egido, 1990). Because telecommuters typically work out of their home environments many develop feelings of isolation. They often feel out of touch with their co-workers and feel that they miss out on informal social interactions that occur naturally in the work environment (Curran and Williams, 1997; Kraut, Egido, and Galegher, 1990; Kraut and Streeter, 1994). The lack of interaction often extends beyond co-worker interaction. Many telecommuters feel disassociated with other business professionals.

Working at home can cause other problems. Some telecommuters experience a sort of "cabin fever" due to the lack of external interaction on a routine basis. Additionally, working at home can cause strain on marital and family relationships. The homogeneity of the work and home environment offers limited stimulus variety, and can ultimately be counterproductive. The yearning for "peace and quiet" in order to accomplish work tasks may soon be perceived as too peaceful and quiet (Curran and Williams, 1997; Race, 1993; Shellenbarger, 1993).

Some telecommuters develop a sense of disconnect between themselves and their organizations. They may feel their skills are being underutilized and that they are 'out of the loop' in terms of office politics and organizational gossip. While the elimination or minimization of office politics is usually cited as a productive benefit of remote work by employers and employees alike, the reality is that humans are social creatures who require some minimum level of social interaction. The loss of social interaction can be mitigated if special attention is given to substituting the negative interactions with positive reinforcement of the employee's role in the organization (Hiltz, 1993; Katz and Kahn, 1979; Katz and Tushman, 1978).

Tucker experienced more of this than he initially thought possible. While T.R.A.D.E. viewed Tucker's absence as somewhat negative, Tucker initially thought the telecommuting arrangement was ideal. Tucker's superiors (Vice President of Engineering, President, and CEO) all expressed reservations with the arrangement due to Tucker's more limited interaction in informal decision making. When in the office his superiors readily would seek out his input and advice on a myriad of business issues. Now that Tucker was not readily available (in person, although he was always accessible at his remote location), his superiors felt they were not utilizing all of his skills.

As time past, Tucker began to feel his political power and informal influence began to wane. He often found himself less informed on critical corporate issues and felt he was not contributing as much to the organization as he had previously. Tucker admits that he now feels somewhat less connected to T.R.A.D.E. His personal identity now revolves less around his role at T.R.A.D.E. and more around his generic software engineering skills.

Costs

The tangible costs and benefits of telecommuting are fairly straightforward and easy to address. For the organization the costs include installation and monthly charges for long distance services to facilitate remote access to the employee which may include voice, data, and video communication. If periodic travel is required, then the cost of this travel will also need to be factored into the equation. Travel costs will not only include transportation costs but hotel and living expenses incurred during stays at the organization's site. These costs will be offset by savings from reduced costs of space (office and parking), furniture, and facilities (heating, air conditioning, and other space related benefits) (Mokhtarian, 1988; Mokhtarian 1991a; Nijkamp and Salomon, 1989; U.S. Department of Transportation, 1993).

For the individual the tangible benefits include reduced costs of transportation and the potential for reduced expenditures from unreimbursed activities such as some business lunches. In the arrangement between Tucker and T.R.A.D.E., Tucker originally proposed that he would pay the expenses of the arrangement out of his pocket. Thus, he pays for the Integrated Services Digital Network (ISDN) telecommunications lines into his home, the special software that enables him to emulate a user's personal computer desktop environment on his personal computer in his home, and the associated travel expenses for the two to three day trips he makes to San Mateo every six weeks.

Productivity Measurement

Metrics of productivity and performance are critical regardless of the work environment. However, less than optimal performance evaluation can be masked in traditional work environments, but vague and ambiguous management approaches fail miserably in telecommuting environments.

This problem notwithstanding, many job functions and individuals can readily adapt to a telecommuting arrangement if good management techniques are practiced. Work tasks must be planned well, delegated specifically, and be accompanied with timetables and deadlines. Tucker and T.R.A.D.E. found this area to be the least problematic to operationalize. This may be attributable to Tucker's job function. As Curran and Williams (1997) point out, the five job categories most suitable to remote working are professionals, professional support, field workers, IT specialists, and clerical support. Depending on the specific definition, Tucker's job could be considered in any one of three of the five: professional, professional support, and IT specialist.

Conclusions

Telecommuting offers substantial benefits for organizations today and into the 21st century. At the same time, workers are demanding more flexibility as alternatives to traditional work relationships. The case study presented throughout this paper is an example of successful telecommuting. The overall conclusion of our study is that successful telecommuting can take place in today's IT environment when experienced, self-motivated, employees are involved, the organization provides flexibility, and procedures are in place for communicating and managing remotely.

References

References available upon request from authors.